A Mariner's Guide to

MARINE WEATHER SERVICES

Coastal, Offshore and High Seas

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service

Small Craft Advisory:	Forecast winds of 18 to 33 knots. NWS may also issue Small Craft Advisories for hazardous sea conditions or lower wind speeds that may affect small craft operations.
Gale Warning:	Forecast winds of 34 to 47 knots.
Storm Warning:	Forecast winds of 48 knots or greater.
Tropical Storm Warning:	Forecast winds of 34 to 63 knots associated with a tropical storm.
Hurricane Warning:	Forecast winds of 64 knots or higher associated with a hurricane.

These advisories and warnings are headlined in marine forecasts. (Details are included elsewhere in this brochure.) Small Craft Advisories may be issued up to 12 hours before the onset of adverse conditions and warnings up to 24 hours in advance.

Introduction

Few people are affected more by weather than the mariner. An unexpected change in winds, seas, or visibility can reduce the efficiency of marine operations and threaten the safety of a vessel and its crew. The National Weather Service (NWS), a part of the National Oceanic and Atmospheric Administration (NOAA), provides marine warnings and forecasts to serve all mariners who use the waters for livelihood or recreation. This pamphlet describes marine services available from the NWS and other agencies.

Warning and Forecast Services

The warning and forecast program is the core of the NWS's responsibility to mariners. Warnings and forecasts help the mariner plan and make decisions protecting life and property.

The following are the basic marine products the NWS offers. NWS also provides information through weather statements or outlooks that supplement basic warnings and forecasts.

Oceanic Products

Coastal Marine Warnings and Forecasts

Designed for mariners staying near shore. Issued by coastal NWS offices.

Issuance Times (by sections of the U.S.)

(no later than)

EAST	GULF	WEST	AK	HAWAII
430A	330A	230A	300A	600A
1030A	930A	830A	----	NOON
430P	330P	230P	300P	600P
1030P	930P	830P	----	Midnight

Note: Table is for local standard times. Issuance times are 1 hour later for those states that switch to daylight savings time.

Content and Format

COASTAL MARINE FORECAST
NATIONAL WEATHER SERVICE NEW YORK NY
500 PM EDT MON APR 6 1998 ***(ISSUING OFFICE/TIME)***

MONTAUK POINT NEW YORK TO SANDY HOOK NEW JERSEY OUT TO 20 NM OFFSHORE INCLUDING LONG ISLAND SOUND AND NEW YORK HARBOR

.SYNOPSIS…AN INTENSE COLD FRONT WILL MOVE EAST ACROSS THE FORECAST AREA TONIGHT. A LARGE HIGH PRESSURE SYSTEM OVER QUEBEC WILL MOVE INTO NEW ENGLAND TONIGHT AND BECOME STATIONARY TUESDAY THROUGH WEDNESDAY. ***(OVERVIEW OF THE WEATHER CAUSES)***

ANZ350-355-070230- ***(COMMUNICATIONS CODE AND EXPIRATION TIME)***
COASTAL WATERS FROM LONGITUDE 73 DEGREES WEST TO MONTAUK POINT NY.
COASTAL WATERS FROM SANDY HOOK NJ TO LONGITUDE 73 DEGREES WEST 500 PM EDT MON APR 6 1998 ***(FORECAST AREA AND ISSUANCE TIME)***

…A GALE WARNING IS IN EFFECT… ***(For more information on HEADLINES, see below)***

.TONIGHT…NORTHWEST WIND 35 KTS DIMINISHING TO 5 TO 15 KTS BY MORNING. SEAS 12 FT SUBSIDING TO 6 FT BY MORNING. WIDELY SCATTERED THUNDERSTORMS
.TUE…NORTHWEST WIND 5 TO 15 KTS. SEAS 6 FT DIMINISHING TO 4 FT.
.TUE NIGHT…NORTH WINDS LESS THAN 10 KTS. SEAS 2 FT.
.WED…NORTHEAST WINDS LESS THAN 10 KTS. SEAS 2 FT.

(WINDS, SEA HEIGHTS, AND WEATHER CONDITIONS SIGNIFICANT TO MARINERS ARE INCLUDED IN THE BODY OF THE FORECAST SUBDIVIDED INTO TIME PERIODS EXTENDING OUT TO 48 HOURS.) (A 3 TO 5 DAY OUTLOOK IS INCLUDED AT THE END OF THE PRODUCT)

HEADLINES are used to focus attention on warnings or other important events contained within the forecast. Such headlines highlight, among other things, ***SMALL CRAFT ADVISORIES, GALE WARNINGS, STORM WARNINGS, and TROPICAL STORM OR HURRICANE WARNINGS*** as needed.

Offshore Warnings and Forecasts

Effective times are generally the same as those for coastal forecasts (slightly different in Alaska). These forecasts, issued by certain NWS offices, are mainly geared to those mariners operating far offshore, a day or more from land.

Offices Issuing Offshore Forecasts

Marine Prediction Center…off New England
Marine Prediction Center…off Mid-Atlantic
Miami…off Southeast US/Caribbean
New Orleans…Gulf of Mexico
Marine Prediction Center…off Washington/Oregon
Marine Prediction Center…off California
Honolulu…off Hawaii
Anchorage…Bering/Gulf of Alaska

Content and Format

OFFSHORE WATERS FORECAST
NATIONAL WEATHER SERVICE WASHINGTON DC
MARINE PREDICTION CENTER/MARINE FORECAST BRANCH
930 AM PDT THU APR 09 1998 ***(ISSUING OFFICE/TIME)***

CALIFORNIA WATERS FROM 60 NM TO 250 NM OFFSHORE ***(DESCRIPTION OF FORECAST AREA)***

.SYNOPSIS…A TROUGH OF LOW PRES WILL SWING E THROUGH THE N PORTION THROUGH FRI. A COLD FRONT WILL SLOWLY MOVE SE THROUGH THE CENTRAL PORTION TODAY AND THE S PORTION TONIGHT WHERE IT WILL WEAKEN. A SECOND FRONT WILL MOVE SE THROUGH THE CENTRAL PORTION LATE TONIGHT AND S PORTION FRI AS A HIGH PRES RIDGE REMAINS IN THE FAR SE PORTION.
$$ ***(BRIEF DESCRIPTION OF FEATURES AFFECTING THE WEATHER FORECAST)***

PZZ083-092230-
POINT ST GEORGE TO POINT ARENA ***(SPECIFIC AREAS FOR WHICH FORECAST IS ISSUED)***

.TODAY…W PORTION…W TO SW WINDS 20 TO 30 KT BECOMING W TO NW LATE. SEAS 10 TO 13 FT.
E PORTION…SW WINDS 15 TO 20 KT. SEAS 8 TO 10 FT. SCATTERED SHOWERS THROUGHOUT.
.TONIGHT…W PORTION…NW WINDS 20 TO 25 KT BECOMING N LATE.
E PORTION…SW WINDS 15 TO 20 KT BECOMING W LATE.
SEAS 9 TO 13 FT THROUGHOUT. SCATTERED SHOWERS THROUGHOUT.
.FRI…WINDS BECOMING N 15 TO 25 KT THROUGHOUT. HIGHEST WINDS W PORTION. SEAS SUBSIDING TO 9 TO 13 FT. WIDELY SCATTERED SHOWERS ENDING.

(WINDS, SEA HEIGHTS, AND WEATHER CONDITIONS SIGNIFICANT TO MARINERS WILL BE INCLUDED IN THIS SECTION SUBDIVIDED INTO TIME PERIODS EXTENDING OUT TO APPROXIMATELY 36 TO 48 HOURS. SMALL CRAFT ADVISORY ARE NOT INCLUDED IN OFFSHORE FORECASTS.)

MARINE EXTENDED OUTLOOK FOR CALIFORNIA WATERS SOUTH TO GUADALUPE ISLAND

.FRI NIGHT THROUGH MON…THE TROUGH WILL SWING THROUGH THE CENTRAL PORTION AND INLAND FRI NIGHT. THE COLD FRONT WILL MOVE INLAND NEAR ENSENADA SAT WITH MODERATE WINDS BEHIND THE FRONT. HIGH PRES WILL BUILD INTO THE WATERS THROUGH SAT NIGHT WITH WINDS LIGHT TO MODERATE SAT BECOMING LIGHT ON SUN. A SECOND COLD FRONT WILL MOVE SE INTO THE N WATERS SUN WITH LIGHT TO MODERATE WINDS EXPECTED BEHIND THE FRONT AND INTO THE CENTRAL AND S WATERS MON WITH LIGHT WINDS EXPECTED.

$$
WINDS LEGEND:
LIGHT……20 KT OR LESS
MODERATE……21 TO 33 KT
GALE……34 TO 47 KT
STORM……48 KT OR MORE
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High Seas Warnings and Forecasts

Forecasts issued by MPC and TPC geared to the needs of the largest ocean going vessels. Emphasis is placed on gale force or worse conditions.

Issuing Offices - Issuance Times (UTC)

MPC/TPC - WEST ATLANTIC - 0400 1000 1600 2200
MPC/TPC - EAST PACIFIC - 0430 1030 1630 2230
HNL - NORTH PACIFIC - 0500 1100 1700 2300
HNL - SOUTH PACIFIC - 0530 1130 1730 2330
MPC - MARINE PREDICTION CENTER, Wash, DC
TPC - TROPICAL PREDICTION CENTER, Miami, FL
HNL - NWS FORECAST OFFICE; Honolulu, HI

Content and Format

HIGH SEAS FORECAST
NATIONAL WEATHER SERVICE WASHINGTON DC
MARINE PREDICTION CENTER/MFB 1630 UTC APR 10 1998
SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS

SECURITE
NORTH ATLANTIC NORTH OF 31 N TO 67 N AND WEST OF 35 W. SYNOPSIS VALID 1200 UTC APR 10. FORECAST VALID 0000 UTC APR 13.

(FORECAST AREA/VALID TIME- APPROXIMATELY 36 HOURS)

WARNINGS

STORM 42N 64W 982 MB WILL MOVE NE 20 KT AND WEAKEN. WINDS 40 TO 55 KT AND SEAS 16 TO 28 FT WITHIN 240 NM OVER THE SE QUADRANT. WIND 25 TO 40 KT SEAS 12 TO 20 FT ELSEWHERE WITHIN 660 NM SE SEMICIRCLE AND 240 NM NW SEMICIRCLE. FORECAST GALE 54N 51W 988 MB. FORECAST WINDS 25 TO 40 KT AND SEAS 12 TO 22 FT WITHIN 780 NM OVER THE E QUADRANT AND 600 NM OVER THE S QUADRANT AND 480 NM ELSEWHERE.

GALE 57N 60W 993 MB WILL MOVE NW 20 KT AND WEAKEN. WINDS 25 TO 35 KT AND SEAS 10 TO 18 FT WITHIN 540 NM NE QUADRANT. FORECAST DISSIPATED.

(THIS SECTION GIVES FORECAST INFORMATION FOR THOSE PARTS OF THE FORECAST AREA IMPACTED BY GALE, STORM, OR HURRICANE FORCE WINDS. IT CONTAINS THE LOCATION [LATITUDE AND LONGITUDE] AND CENTRAL PRESSURE [IN MILLIBARS] OF THE SYSTEM CAUSING THE WINDS, THE FORECAST MOVEMENT OF THAT SYSTEM, AND DISTRIBUTION OF WIND SPEEDS AND SEAS RELATIVE TO THE SYSTEM'S CENTER.)

SYNOPSIS AND FORECAST

LOW 43N 33W 1014 MB WILL DISSIPATE. WINDS 20 TO 30 KT AND SEAS 8 TO 14 FT WITHIN 480 NM N AND NE QUADRANTS. FORECAST DISSIPATED.

FORECAST LOW CENTER NEAR 31N 67W 1009 MB TO MOVE NE 15 KT. WINDS 20 TO 30 KT SEAS 8 TO 14 FT WITHIN 540 NM NW QUADRANT.

HIGH 32N 46W 1024 MB WILL DRIFT E. FORECAST HIGH 34N 40W 1028 MB. ***(THIS SECTION CONTAINS FORECAST INFORMATION FOR THOSE PARTS OF THE FORECAST AREA NOT DESCRIBED IN THE WARNINGS SECTION.)***

Coastal Flood Watches and Warnings

Issued by local NWS office. Coastal flooding may be caused by an above normal rise in water level with an approaching ocean storm or large breaking waves on shore because of large ocean swells. In either case, the extent of flooding also depends on tide levels, underwater and surface topography, and run-off from rivers and estuaries.

Content and Format

COASTAL FLOOD WARNING
NATIONAL WEATHER SERVICE GRAY ME
500 AM EDT TUE SEP 8 1998 ***(ISSUING OFFICE AND ISSUANCE TIME - THESE ARE ISSUED AT ANY TIME AS NEEDED. THE NWS ISSUES:***

COASTAL FLOOD WARNINGS - COASTAL FLOODING IS OCCURRING OR IMMINENT WITHIN THE NEXT 12 HOURS
COASTAL FLOOD WATCHES - COASTAL FLOODING IS POSSIBLE AFTER 12 HOURS).

…THE NATIONAL WEATHER SERVICE HAS ISSUED A COASTAL FLOOD WARNING FOR THE MAINE AND NEW HAMPSHIRE COASTLINES FOR TONIGHT AND WEDNESDAY…

STORM TIDES FROM HURRICANE JANET WILL CAUSE COASTAL FLOODING ALONG THE MAINE AND NEW HAMPSHIRE COASTLINE AROUND THE TIME OF HIGH TIDE TONIGHT AND WEDNESDAY. JANET REMAINED A LONG DISTANCE FROM MAINE AND NEW HAMPSHIRE EARLY THIS MORNING…BUT WILL MOVE RAPIDLY NORTHWARD TODAY.

EFFECTS FROM HURRICANE JANET WILL BEGIN TO BE FELT ALONG THE SOUTHWEST PORTION OF THE COAST LATER THIS AFTERNOON. STORM TIDES ARE EXPECTED TO BUILD TO MORE THAN TWO FEET AS JANET APPROACHES. STORM TIDES IN COMBINATION WITH THE NORMAL ASTRONOMICAL TIDES WILL CAUSE COASTAL FLOODING AROUND THE TIME OF HIGH TIDES. HIGH TIDES WILL OCCUR AT HAMPTON HARBOR NEW HAMPSHIRE AT 141 AM TONIGHT AND AGAIN AT 206 PM WEDNESDAY AFTERNOON. HIGH TIDES AT PORTLAND MAINE ARE AT 127 AM TONIGHT AND 152 PM WEDNESDAY. HIGH TIDES AT EASTPORT MAINE ARE AT 114 AM TONIGHT AND 138 PM WEDNESDAY.

A COASTAL FLOOD WARNING MEANS THAT FLOODING IS OCCURRING OR IS EXPECTED TO OCCUR AT OR NEAR THE TIME OF HIGH TIDE. PEOPLE IN COASTAL AREAS SHOULD TAKE PRECAUTIONS TO PROTECT THEIR PROPERTY AND MOVE TO HIGHER GROUND IF FLOOD WATERS THREATEN. DO NOT DRIVE INTO FLOODED ROADWAYS. IT IS EXTREMELY DANGEROUS TO OBSERVE THE WAVES FROM EXPOSED ROCKS AND BEACHES AS LARGE WAVES CAN SUDDENLY SWEEP YOU INTO THE OCEAN.

Hurricane and Tropical Storm Advisories

Hurricane and Tropical Storm Advisories are issued for the Atlantic, Pacific, Gulf of Mexico and Caribbean regions by the Tropical Prediction Center in Miami and the Central Pacific Hurricane Center in Honolulu. These advisories are issued at least four times a day and extend out to 72 hours.

For the tropical west Pacific (between 130°E and the International Dateline), typhoon and tropical storm advisories are issued by the Joint Tropical Warning Center. Tropical Cyclone Public Advisories are issued by the NWS office in Guam.

Content and Format

HURRICANE JANET ADVISORY NUMBER 24
NATIONAL WEATHER SERVICE MIAMI FL
11 AM EDT SUN SEP 06 1998

…TROPICAL STORM WARNING REMAINS POSTED FOR THE BAHAMAS AS HURRICANE JANET PASSES TO THE EAST OF THE NORTHERN BAHAMAS…

…HURRICANE WATCH REMAINS POSTED FOR THE NORTHERN BAHAMAS…

AT 11 AM EDT…1500Z…THE CENTER OF HURRICANE JANET WAS LOCATED NEAR LATITUDE 24.1 NORTH…LONGITUDE 71.6 WEST OR ABOUT 800 MILES…1300 KM…SOUTH SOUTHEAST OF CAPE HATTERAS, NC.

HURRICANE JANET IS MOVING TOWARD THE NORTHWEST NEAR 14 MPH…22 KM/HR…AND THIS MOTION IS EXPECTED TO CONTINUE.

MAXIMUM SUSTAINED WINDS ARE NEAR 145 MPH…230 KM/HR…WITH HIGHER GUSTS. LITTLE CHANGE IN STRENGTH IS FORECAST DURING THE NEXT 24 HOURS.

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 80 MILES…130 KM…FROM THE CENTER…AND TROPICAL STORM FORCE WINDS OUTWARD UP TO 230 MILES…370 KM.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 942 MB…27.82 INCHES.

DANGEROUS HURRICANE JANET REMAINS EAST OF THE BAHAMAS BUT CONTINUES TO BRING TROPICAL STORM FORCE CONDITIONS TO THE BAHAMAS. PERIODS OF VERY HEAVY RAIN HAVE FORCED THE ISSUANCE OF FLOOD AND FLASH FLOOD WARNINGS FOR THE ISLAND CHAIN. RAINS EXCEEDING 8 INCHES ARE EXPECTED BEFORE RAINS TAPER OFF LATER TONIGHT. COASTAL FLOODING AND BEACH EROSION WILL CONTINUE AS TIDES REMAIN 2 TO 4 FEET ABOVE.

REPEATING THE 11 AM EDT POSITION…24.1 N…71.6 W. MOVEMENT TOWARD…NORTHWEST NEAR 14 MPH. MAXIMUM SUSTAINED WINDS…145 MPH. MINIMUM CENTRAL PRESSURE…942 MB.

AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 2 PM EDT FOLLOWED BY THE NEXT COMPLETE ADVISORY AT 5 PM EDT.

Tsunami Watches/Warnings

Tsunamis are seismic sea waves caused by disturbances under the ocean such as earthquakes and land slides. The damaging effects of a tsunami are felt mainly at or near the coastline due to large waves lifting normal water levels and pushing inland. A tsunami may affect areas hundreds or even thousands of miles from its origin with devastating results. Tsunamis occur mainly in the Pacific Ocean and Alaskan Gulf regions because of the surrounding geologically active areas. NWS issues Tsunami Watch/Warning bulletins are issued for the Pacific Ocean and surrounding areas based on the magnitude and location of the underwater geological event. Content and format are generally the same as for Coastal Flood Watches/Warnings.

TSUNAMI BULLETIN NUMBER 1
WEST COAST AND ALASKA TSUNAMI WARNING CENTER/ NOAA/NWS
ISSUED AUG 14 AT 2338 UTC

…A TSUNAMI WARNING IS IN EFFECT…

THIS IS A TSUNAMI WARNING FOR THE COASTAL AREAS FROM CALIFORNIA-MEXICO BORDER TO ATTU, AK, INCLUSIVE.

AN EARTHQUAKE, PRELIMINARY MAGNITUDE 3.3, OCCURRED AT 0704 ADT ON AUG 11, OR 0804 PDT ON AUG 11, OR 1504 UTC ON AUG 11. THE EARTHQUAKE WAS LOCATED 100 MILES NE OF ANCHORAGE, AK., OR 50 MILES NE OF TALKEETNA, AK, AT 62.5N, 148.6W.

THE PACIFIC TSUNAMI WARNING CENTER AT EWA BEACH, HAWAII , WILL ISSUE BULLETINS FOR OTHER AREAS OF THE PACIFIC.

EVALUATION: IT IS NOT KNOWN /REPEAT NOT KNOWN/ IF A TSUNAMI EXISTS, BUT A TSUNAMI MAY HAVE BEEN GENERATED. THEREFORE PERSONS IN LOW LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. PERSONS ON THE BEACH SHOULD MOVE TO HIGHER GROUND IF IN A WARNED AREA.

TSUNAMI WAVE HEIGHTS CANNOT BE PREDICTED AND MAY BE A SERIES OF WAVES WHICH COULD BE DANGEROUS FOR SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOLLOW:
VALDEZ, AK 0757 ADT AUG 11
CORDOVA, AK 0818 ADT AUG 11
SEWARD, AK 0759 ADT AUG 11
YAKUTAT, AK 0834 ADT AUG 11

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THE TSUNAMI WATCH/WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

Wind Speed/Sea Height Relationships

WINDS	SEA CONDITIONS
0-3 KTS	SEA LIKE A MIRROR
4-6 KTS	RIPPLES, LESS THAN 1 FT
7-10 KTS	SMOOTH WAVELETS, 1-2 FT
11-16 KTS	SMALL WAVES, 2-4 FT
17-21 KTS	MODERATE WAVES, MANY WHITECAPS, 4-8 FT
22-27 KTS	LARGE WAVES, SPRAY, 8-13 FT
28-33 KTS	HEAPED SEAS, FOAM FROM BREAKING WAVES, 13-20 FT
34-40 KTS	HIGH WAVES, FOAM BLOWN IN WELL MARKED STREAKS, 13-20 FT
41-47 KTS	SEAS ROLL, SPRAY MAY REDUCE VISIBILITY, 13-20 FT
48-55 KTS	VERY HIGH WAVES, WHITE SEAS, OVERHANGING CRESTS, 20-30 FT
56-63 KTS	EXCEPTIONALLY HIGH WAVES, 30-45 FT
OVER 63 KTS	AIR FILLED WITH FOAM, SEA COMPLETELY WHITE, OVER 45 FT

This chart is based on criteria used by the World Meteorological Organization. Mariners should realize that these values are reached after winds have blown steadily over a large area for an extended period. Also, the values given are average observed wave heights, not the highest that may be seen for a given wind speed.

NOAA/PA 98054
Revised October 1998

Other Marine Products

Special Marine Warnings

The NWS issues Special Marine Warnings for potentially hazardous over-water events, usually of short duration (up to 2 hours), not adequately covered by other marine warnings and forecasts. These events include thunderstorms, waterspouts, squalls, wind shifts, and other short-lived conditions. Special Marine Warnings are issued mainly for the coastal waters and the Great Lakes but may also be issued for offshore areas.

If a tornado or Severe Thunderstorm is expected to move over coastal waters, NWS issues a special Marine Warning. If a Severe Thunderstorm or waterspout is expected to move ashore, NWS issues a separate warning for the coastal areas.

Content and Format

BULLETIN - EAS ACTIVATION REQUESTED
SPECIAL MARINE WARNING
NATIONAL WEATHER SERVICE OXNARD CA
250 PM PDT WED AUG 6 1997 ***(ISSUING OFFICE/TIME***
THESE ARE ISSUED AT ANY TIME AS NEEDED)

THE NATIONAL WEATHER SERVICE IN OXNARD HAS ISSUED A

* SPECIAL MARINE WARNING FOR…
THE EAST SANTA BARBARA CHANNEL
FROM PT CONCEPTION TO PT MUGU INCLUDING SANTA CRUZ ISLAND

* UNTIL 400 PM PDT

* AT 245 PM PDT…THE NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED STRONG THUNDERSTORMS DEVELOPING BETWEEN OXNARD AND SANTA CRUZ ISLAND…MOVING TO THE NORTHWEST AT 20 MPH.

* THE THUNDERSTORM THREAT WILL BE GREATEST FROM…OXNARD TO EAST SANTA CRUZ ISLAND BY 300 PM PDT WEST SANTA CRUZ ISLAND TO SANTA BARBARA HARBOR BY 330 PM PDT.

THESE THUNDERSTORMS WILL PRODUCE WIND GUSTS TO 40 KNOTS…ROUGH SEAS AND NEAR ZERO VISIBILITY. BOATERS IN EAST SANTA BARBARA CHANNEL SHOULD TRY TO SEEK SAFE HARBOR.

(THE CONTENT OF THE WARNING GIVES THE AREA AFFECTED, THE TIME PERIOD, THE CAUSE, AND USER SAFETY INFORMATION FOR THE WARNING)

Marine Weather Statements

Marine Weather Statements are used to follow up the Special Marine Warnings.

Local Marine Forecasts

Local marine forecasts are issued in special circumstances to provide additional information for harbors, channels, and river entrances where the information in the coastal waters forecasts is not sufficient. Winds, sea state, significant weather, ocean currents or abnormal tides, and bar conditions may be included based on local needs and the availability of observations. The format and content of this product is similar to that of the coastal forecast.

Dissemination Of Marine Weather Products

Marine weather products are widely disseminated via U.S. Coast Guard (USCG) broadcasts, NOAA Weather Radio, Internet e-mail, and other methods. The following summarizes the primary methods of dissemination. Please refer to the MSC charts, or websites in the paragraph below, for broadcast times and frequencies.

Websites of Interest

- The USCG Navigation Center webpage contains an excellent description of marine communications systems: **www.navcen.uscg.mil**
- NOAA homepage: **www.noaa.gov**
- NWS homepage: **www.nws. noaa.gov**
- USCG homepage: **www.uscg.mil**

USCG HF Radiofax

The U.S. Coast Guard (USCG) broadcasts highseas weather maps, sea surface temperature maps, and text forecasts over HF radiofax. Transmitter sites are located at Boston (NMF), New Orleans (NMG), Kodiak (NOJ), Pt. Reyes (NMC), and Honolulu (KVM-70).

Radiofax charts, and some marine text products, are also available via Internet e-mail (FTPMAIL). More information is available via the NWS homepage.

WWV and WWVH (time tick)

A summary of Atlantic and Pacific highseas storm information.

USCG SITOR

Also known as Narrow Band Direct Printing. Broadcast of highseas forecast in text form. Limited offshore forecasts also available.

USCG Voice

Voice broadcast of highseas forecasts. Limited offshore forecasts also available.

NOAA Weather Radio

The NOAA Weather Radio network provides voice broadcasts of coastal and marine forecasts on a continuous cycle. This network covers nearly all of the U.S., Great Lakes, Hawaii, populated Alaskan coastline, and Guam and the Northern Mariana Islands. Typical coverage is 25 nm offshore.

When severe weather threatens, an alarm tone is sent to automatically turn on compatible NOAA Weather Radio receivers in the transmitter's coverage area.

NOAA Telephone Recordings

Many NWS forecast offices offer recorded marine and local forecasts as found on NOAA Weather Radio. These numbers are usually listed in the telephone directory under "United States Government, Commerce Department, National Weather Service."

USCG VHF VOICE

USCG broadcasts nearshore and coastal waters forecasts and storm warnings on VHF channel 22A following an initial call on VHF channel 16. The USCG VHF network provides near-continuous coverage of coastal U.S., Great Lakes, Hawaii, the populated Alaskan coastline, and Guam and the Northern Mariana Islands. Typical coverage is 25 nm offshore.

USCG MF VOICE

USCG broadcasts offshore forecasts and storm warnings on 2670 kHz following an initial call.

NAVTEX

NAVTEX is a USCG broadcast of offshore forecasts and warnings in text form. Limited coastal and nearshore forecasts are also available. Typical coverage is 200 nm offshore.

NOAA HF VOICE

NOAA broadcasts offshore forecasts, coastal waters forecasts and storm warning on 4125 kHz in Alaska.

INMARSAT-C SafetyNET

This is a broadcast of Maritime Safety Information that includes highseas weather.

DIAL-A-BUOY

Mariners now can obtain the latest coastal and offshore weather observations through a new telephone service called Dial-A-Buoy. This service provides wind and wave measurements taken within the last hour at stations located in coastal waters around the United States and in the Great Lakes.

To access Dial-a-Buoy, dial **228/688-1948** using a touch tone or cellular phone. Enter the five-digit station identifier in response to the prompt. The Dial-a-Buoy menu tree has a selection for the caller to receive a map of buoy station identifiers via return call fax. Station identifiers also can be obtained at the following web site: **http://seaboard.ndbc.noaa.gov**

Marine Services Charts

MSC charts are available for 11 segments of the continental US as well as Alaska, Hawaii, Puerto Rico and the Virgin Islands, and Guam and the Northern Mariana Islands. These charts are regularly updated.

MSC charts contain maps of the area including locations of NWR transmitters, USCG stations, and marine observation sites; helpful information such as locations, times, and frequencies of marine broadcasts; and NWS contact points

MSC charts can be purchased from:

National Ocean Service
Distribution Division (N/ACC3)
Riverside, MD 20737-1199
Telephone: 301-436-8301

The NWS publishes Marine Weather Service Charts for the following segments of the U.S. coastline.

MSC-1	Eastport, ME to Montauk Point, NY
MSC-2	Montauk Point, NY to Manasquan, NJ
MSC-3	Manasquan, NJ to Cape Hatteras, NC
MSC-4	Cape Hatteras, NC to Savannah, GA
MSC-5	Savannah, GA to Apalachicola, FL
MSC-6	Apalachicola, FL to Morgan City, LA
MSC-7	Morgan City, LA to Brownsville, TX
MSC-8	Mexican Border to Pt. Conception, CA
MSC-9	Pt. Conception to Pt. St. George, CA
MSC-10	Pt. St. George, CA to Canadian Border
MSC-11/12	Great Lakes
MSC-13	Hawaii Waters
MSC-14	Puerto Rico and Virgin Islands
MSC-14S	Puerto Rico and Virgin Islands (spanish)*
MSC-15	Alaska Waters
MSC-16	Guam and the Northern Mariana Islands

*planned

Weather Rules for Safe Boating

Before setting out:
Obtain the latest weather forecast for your boating area. Where they can be received, the NOAA Weather Radio continuous broadcasts (VHF-FM) are the best way to keep informed of expected weather and sea conditions. If you hear on the radio that marine warnings are in effect, do not venture out on the water unless you are confident that your boat can be navigated safely under forecast wind and sea conditions.

While afloat, watch for:

- Approach of dark threatening clouds, which may foretell a squall or thunderstorm
- Steady increase in wind or sea
- Decrease in visibility, such as from fog
- Increase in wind velocity opposite in direction to strong tidal current. A dangerous rip tide condition may form steep waves capable of broaching a boat.

Listen for:

- Radio weather broadcasts for latest forecasts and warnings
- Heavy static on your AM radio, which may indicate nearby thunderstorm activity.

If a thunderstorm catches you while afloat:

- Remember not only gusty winds but also lightning poses a threat to safety.
- Stay below deck if possible.
- Keep away from metal objects that are not grounded to the boat's protection system.
- Do not touch more than one grounded object at the same time (or you may become a shortcut for electrical surges passing through the protection system).
- Put on a life jacket and prepare for rough seas.

Global Maritime Distress And Safety System (GMDSS)

The goals of GMDSS are to provide more effective and efficient emergency and safety communications and disseminate maritime safety information (MSI) to all ships on the world's oceans regardless of location or atmospheric conditions. MSI includes navigational warnings, meteorological warnings and forecasts, and other urgent safety-related information. The National Weather Service participates directly in the GMDSS by preparing meteorological forecasts and warnings for broadcast via NAVTEX and SafetyNet.